

## THE LARVA OF *BLEPHARIDATTA* (HYMENOPTERA: FORMICIDAE)

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*Abstract.*—The larva of the myrmicine genus *Blepharidatta* is described for the first time and illustrated. The genus is transferred from the tribe Ochetomyrmecini to a new tribe Blepharidattini.

### HISTORY

Wheeler described the genus *Blepharidatta* in 1915 and assigned it to the myrmicine tribe Attini; he added, "but it differs so much from the other known genera in the structure of the head and especially the 2-jointed club of the antennae, the 4-toothed mandible and the regularly arranged setiform hairs on the dorsal surface, that it seems necessary to establish a distinct genus for its accommodation. Apart from the head the structure of the body is very simple and primitive for an Attine [sic!] ant, even simpler and more primitive than in the genus *Proatta*, recently established by Forel for a unique Sumatran species." Wheeler also described as the type species *brasiliensis* from Pará, Brazil.

Gallardo (1916:319) reported finding several worker ants at Alta Gracia, a mountain resort ca. 20 mi south of Córdoba, which is in the province of Córdoba, in north-central Argentina.

Emery (1921-1922) placed *Blepharidatta* in the Dacetini (p. 12) because of its "tête cordiforme, échancrée par derrière et fort rétrécie devant" and separated it from the other genera (p. 313) by the "scrobe occupant tout le bord latéral de la tête; mandibules courtes, pouvant se croiser." He gave the distribution (p. 315-316) as "Brésil: Pará. Argentine" and said: "Cette Fourmis a une ressemblance frappante avec le genre fossile *Hypopomyrmex* de l'ambre de Sicile. M. Wheeler classe le genre *Blepharidatta* parmi les Attini. Il me semble avoir bien plus d'affinité avec les Dacetini."

Wheeler stated (1922:376) that the habits of *Blepharidatta* are unknown. In his key to genera (p. 668) he separated *Blepharidatta* from all other attine genera by its distinct 2-jointed antennal club and its long antennal scrobes.

In 1953 Brown transferred *Blepharidatta* to the tribe Ochetomyrmecini because it is "very closely related to the species of *Wasmannia* Forel, differing chiefly in its more elongate head with produced posterior angles and in having a long, low petiolar node."

Kempf in 1967 described a second species (*B. conops*), from Três Lagoas, Mato Grosso State, Brazil. He also placed the genus in the tribe Ochetomyrmecini.

In 1975 Kempf devoted several pages to prove that *Ochetomyrmex* and *Wasmannia* could not be in the same tribe and suggested "at least as a provisional solution, the transfer of *Ochetomyrmex* to the Solenopsidine tribal complex, in the sense of

Ettershank. Thus the tribe name *Ochetomyrmecini* (nov. syn.) becomes meaningless, and the genera *Wasmannia* and *Blepharidatta* are without a tribal name. I refrain from coining a new name for these two groups, because it seems that the whole classification, generic and tribal, of the lower Myrmicinae needs urgent overhauling."

Our study of larvae supports the tribal separation of *Wasmannia* and *Ochetomyrmex* and the transfer of the latter to tribe Solenopsidini, but we are not about to join Kempf's refrain and put *Blepharidatta* and *Wasmannia* in the same tribe. We prefer to leave *Wasmannia* in Tribal Limbo, pending the Great Overhaul.

#### TRIBES

Before beginning the study of the larvae, we decided it would be advisable to get acquainted with the workers of the tribes involved. Characterizations of tribes are generally unsatisfactory, so we supported them by reality, namely examination of actual workers in our reference collection.

In his key (1922:655) Wheeler characterized the Dacetini thus: Clypeus prolonged between frontal carinae; head cordate, strongly narrowed in front, its dorsal corners not spinose. Antennae 4- to 12-jointed, the last joint being very much longer than the preceding; mandibles perfect.

We characterize the Proattini thus: Monotypic. Antennae 12-segmented, not clubbed. Head with an antennal scrobe, each dorsal corner produced into three tubercles. Dorsum with 10 spines on thorax and three on epinotum. Male with 13-segmented antennae and well developed pterostigma. Do not cultivate fungi. Old World (Malaysia).

We characterize *Wasmannia* thus: Monomorphic. Antennae 11-segmented, with 3-segmented club, with terminal segment decidedly predominant. Antennal scrobe shallow. Meso-epinotal suture impressed; surface of thorax roughened with sculpture only. Epinotum armed with spines. Hairs long and sparse.

We characterize the adults of tribe Attini as follows: Workers and female: antennae 11-segmented, without a club. Pterostigma narrow or absent. Worker: monomorphic or polymorphic. Head with antennal scrobe. Thoracic dorsum with spines, teeth, bosses or prominent ridges. Male: Antennae usually 13-segmented. Cultivate fungi. New World.

We establish a new tribe for *Blepharidatta* with the name *Blepharidattini* based on worker characters: Monotypic. Monomorphic. Head with deep antennal scrobes extending to dorsal corners. Each dorsal corner of head with an angulate tubercle. Eyes notably protuberant. Antennae 11-segmented, with a 2-segmented club. Mandibles triangular and 4-toothed, directed ventrally. Thoracic dorsum without impressed sutures; surface roughened with sculpture only. Epinotal spines long. Petiole long and with only a small node or none. Postpetiole small. Hairs sparse, long and bristle-like.

It is difficult to compare a single genus with 11 genera of Attini, but it is possible to compare *Blepharidatta* with the most primitive attine genus, *Cyphomyrmex*. In order to facilitate a multiple comparison we prepared a table (see Table 1) of 18 characters of *Blepharidatta*, *Cyphomyrmex* and *Wasmannia*. Characters 1-5 are shared by all three genera; 6 and 7 are shared by *Wasmannia* and *Blepharidatta*; 8-10 are shared by *Blepharidatta* and *Cyphomyrmex*; 11 and 12 are shared by *Wasmannia* and *Cyphomyrmex*; while 13-18 are different in each genus.

Table 1. Comparison of 18 characters of workers of *Blepharidatta*, *Cyphomyrmex* and *Wasmannia*.

Character	<i>Wasmannia</i>	<i>Blepharidatta</i>	<i>Cyphomyrmex</i>
1. Castes	monomorphic	monomorphic	monomorphic
2. Mandible	triangular	triangular	triangular
3. Mandibular teeth	4 subequal	4 subequal	4 subequal
4. Eyes	moderately large and protruding	moderately large and protruding	moderately large and protruding
5. Antennal segments	11	11	11
6. Epinotal spines	present	present	none
7. Humeral angles	dentiform	dentiform	rounded
8. Frontal carinae	not lobulate below	lobulate below	lobulate below
9. Scrobe	shallow	deep	deep
10. Sting	well developed	vestigial	vestigial
11. Dorsal corners of head	rounded	angularly tuberculate	rounded
12. Mesoepinotal suture	present	absent	present
13. Antennal club	3-segmented	2-segmented	no club
14. Petiole	large; node high, narrow	long; low node present or absent	short, low, wide
15. Postpetiole	normal	small	large
16. Gaster	1st somite long, others small	small	small, 1st somite covers others
17. Body hairs	long, erect, sparse	long, bristly, erect on dorsum	appressed, rather scale-like
18. Thoracic sculpture	rugae only	rugae and punctures	bosses or carinae

To us, this means that *Blepharidatta* should be placed in a monotypic tribe, if only adult anatomy is considered. However, taxonomists now maintain that a species should be defined by *all* its characters.

#### LARVAE

In September 1989 we received from Dr. J. Latke in Caracas, Venezuela a most welcome gift of 2 workers and 12 larvae of *B. brasiliensis*. These not only enabled us to examine a very rare ant species but to describe a larva new to us and perhaps to shed some light on the tribal problem.

#### *Blepharidatta brasiliensis* Wheeler

##### Fig. 1

Length (through spiracles) 1.5–2 mm. Profile attoid; segmentation indistinct; spiracles on T2 0.01 mm in diameter, decreasing gradually to 0.008 mm on AI, and to 0.006 mm on AVIII. Integument minutely spinulose, the spinules more numerous

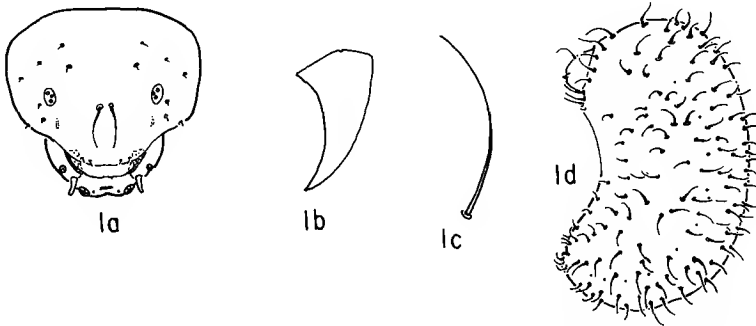


Fig. 1. *Blepharidatta brasiliensis*. a, Head in anterior view,  $\times 100$ ; b, left mandible in anterior view,  $\times 625$ ; c, body hair,  $\times 100$ ; d, larva in side view,  $\times 30$ .

and in short rows on venter of anterior somites and dorsum of posterior somites. Body hairs sparse, 0.025–0.125 mm long, slightly curved, tip sometimes flexuous. Cranium suboctagonal, widest dorsally; integument of dorsal portion spinulose, the spinules minute and in short to long rows. Antennae large, at midlength of cranium, each with 3 sensilla, each of which bears a spinule. Head hairs few (ca. 22), very short (0.003–0.008 mm long), except for 2 near midline (ca. 0.06 mm long). Labrum crescentic, wide and very short, anterior surface with 2 sensilla; ventral surface with 6 sensilla; posterior surface with numerous rows of minute spinules. Mandible small, narrowly subtriangular; apex moderately sclerotized, sharp-pointed and without medial or superficial teeth. Maxilla with rounded apex (adnate?); palp a short frustum with 5 (4 apical and 1 lateral) sensilla; galea tall digitiform with 2 apical sensilla. Labium feebly bilobed, with short arcuate rows of minute spinules; palp an irregular projection with 5 sensilla; an isolated sensillum between each palp and the opening of the sericteries; the latter a transverse slit. Hypopharynx spinulose, the spinules minute and in arcuate rows, which are in subtransverse rows. (Material studied: 12 larvae from Alto Rio Mabaca, Amazonas, Venezuela, 2°1'N, 65°7'W, alt. 200 m, courtesy of J. Lattke.)

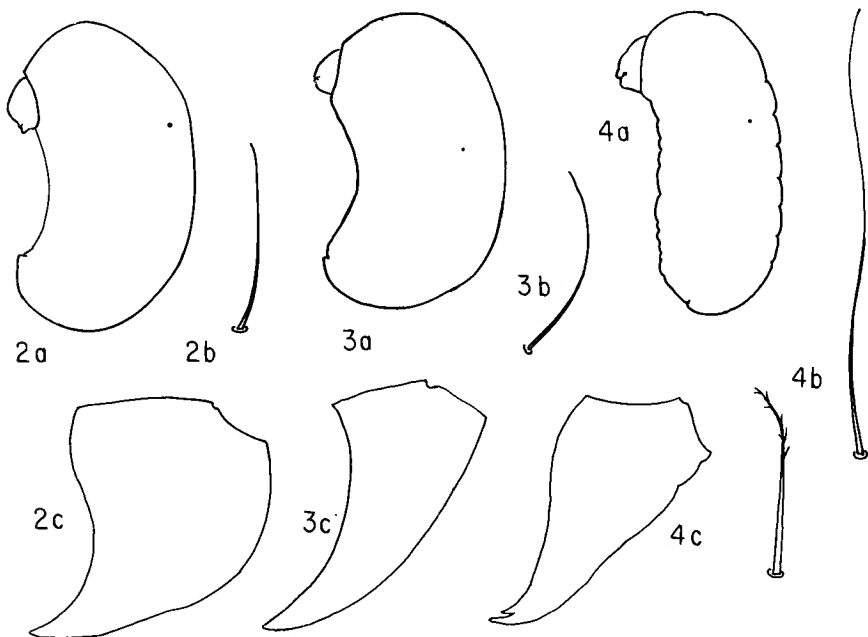
We have characterized the larvae of Attini (1976:60 and 1986:691) as follows: Profile attoid. Body almost naked, the few hairs minute to short and largely restricted to the ventral surface. Mandibles attoid, surface covered with coarse spinules, which are directed apically.

The larvae of several genera do not conform (see G. C. Wheeler, 1948), but they are kept in the Attini because their adults culture fungi. *Myrmicocrypta* has none of the distinctive larval characters, but it has adult characters. *Apterostigma* and *Sericomyrmex* have non-attoid mandibles, but adults and all other larval characters conform.

We characterized the larva of *Proatta* in 1985, but we now characterize it thus: Profile pheidoloid. Mandibles amblyoponoid, without spinules. Body hairs sparse, generally distributed, short, with tip curved or bifid.

We characterize the larva of *Wasmannia* thus: Profile pheidoloid. Body hairs sparse; short and denticulate and long unbranched. Mandibles pristomyrmecoid.

We characterize the larva of Blepharidattini thus: Profile attoid. Mandibles am-



Figs. 2-4. Comparison of larvae of *Cyphomyrmex*, *Blepharidatta* and *Wasmannia*. 2. *Cyphomyrmex*. a, Profile; b, body hair; c, left mandible in anterior view. 3. *Blepharidatta*. a, Profile; b, body hair; c, left mandible in anterior view. 4. *Wasmannia*. a, Profile; b, 2 types of body hairs; c, left mandible in anterior view.

blyoponoid, with two acute teeth, one apical and one subapical. Body hairs sparse and moderately long; generally distributed; unbranched, smooth and slightly curved.

In Figures 2-4 we compare the larva of a primitive attine (*Cyphomyrmex*), with that of *Wasmannia*, and with that of *Blepharidatta*.

#### CONCLUSION

Our overall conclusion is that the tribe Attini comprises the 11 fungus-growing genera. The genus *Proatta* remains in the monotypic tribe Proattini. The tribe Ocheto-myrmecini is dissolved and the genus *Blepharidatta* is transferred to a new monotypic tribe Blepharidattini.

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